A3 Problem Solving April 2013

Concern/Problem	(Describe concern or problem in a very brief statement that clearly identifies the issue) Electricity costs at WWTP can be reduced through technology and operational strategy.
Identify those departments, divisions, or units that may be impacted	Utilities Department, Wastewater Treatment Plant
Record the date the problem was identified	Ongoing process
Originator	(Identify the individual(s) or team members who identified this concern/problem) Kurt Williams
Contacts	(Identify all those that were contacted in order to obtain information regarding this issue) Westar Energy
Problem Solving Team	(Identify by name all those who participated in solving this concern/problem) WWTP Staff, Martha Tasker, KDHE
Describe Current Situation	(using a narrative form describe in detail the current situation, including all issues that arose) Power costs for WWTP are budgeted at $230,000 annually; staff makes continuous efforts to reduce these costs.
Analysis	(using bullet points, LSS charts or diagrams, or any other analytical tools provide a thorough, yet succinct analysis that clearly identifies the root cause of the problem) In 2013, staff requested the Kansas Department of Health and Environment (KDHE) to provide no-cost assistance to the WWTP in achieving energy efficiency and assessing the ability to achieve Biological Nutrient Removal with existing equipment. Working with KDHE allowed for the ability to experiment with the process with confidence that permit excursions would not lead to serious consequence. Plant personnel spent the summer (starting in June) working with Jerry Grant (retired KDHE engineer) taking the Trickling Filter process off line, removing four pumps and two clarifier drives from service for a total of 56 HP. This required staff to perform extensive testing of the process and develop operating conditions that allowed the plant to meet permit limits with the Trickling Filters off line (these filters had been in service continuously since 1948). The current SCADA system could not provide dissolved oxygen control precisely enough to meet the new operational conditions, requiring staff to control the compressors in manual operation, leading to the reduced electrical consumption experienced since June of 2013. Funds are available in the 2014 budget to install a comprehensive control system to allow automatic control of the dissolved oxygen in multiple basins. In September 2013, staff assessed the need for plant equipment at current plant loading and took one (of two) Pre-Aeration/Grit Handling systems off line, removing one compressor, conveyor, pump and washer from service for a total of 48 HP. **At current electric rates, the savings from the 2013 effort is approximately $2,660 per month or $31,920 annually.**
Recommendation	Continue with the operating strategy described; continue to search out greater efficiencies.
Labor and Cost Savings	

	Annual dollar savings: $31,920 from reduced electrical costs $1,748 from reduced landfill fee's
	Annual hours of increased capacity: Increased capacity will be determined in the future. Decreased maintenance costs, reduced man-hours and extended equipment life will be a positive side effect from taking systems off-line. The Pre-Aeration/Grit handling systems are high-wear with replacement/rebuild anticipated every 10 years. Leaving one of two systems idle will offer the opportunity to reduce costs and save maintenance personnel hours. Leaving the Trickling Filter process off line offers additional benefits as follows: Reduces landfill costs (trickling filters produce snail shells that are removed with the grit handling system), and takes eight major structures, two buildings, eight pumps and four drive units out of the maintenance/replacement schedule for the foreseeable future.
	Use bullet points to identify customer service or employee benefits: -Electrical cost savings result in lower rates for customers -Taking equipment off line extends equipment life and results in decreased maintenance.
	(briefly describe your implementation plan upon approval of this project) Project is completed
Attachments	Refer to attached monthly WWTP electricity consumption graph
	Approval Process
Supervisor's Review and others in the Chain of Command	Instructions: This form is submitted through the chain of command to the Director Date: 4/11/14 Name:Kurt Williams Comments:
Director's Approval	Instructions: Approval authority is delegated to each Director for all recommendations that results in $5,000 or less in annual savings, or 250 hours or less of annual increased capacity. Date: 4/11/14 Name: Martha Tasker Approved/Denied: Comments:
Process Improvement Director's Approval	Instructions: Upon approval this form is sent to the CMO Executive Assistant, who forwards a copy to members to the Executive Support Team. They determine how to convert hours into budgetary savings. Date: 4/11/14 Approved/Denied: Comments:
City Manager's Approval	Instructions: Final sign off for all recommendations that exceed $5,000 in annual savings, or 250 hours of annual increased functional capacity is by the City Manager, who also signs off on any plans to convert hours to budgetary savings. The CMO Executive Assistant converts the approved form into a pdf file that is saved on the P drive and in Laserfiche. Date: Approved/Denied: Comments: